[002] This application is a national stage completion of PCT/EP2003/009648 filed August 30, 2003 which claims priority from German Application Serial No. 102 41 006.2 filed September 5, 2002.

[003] FIELD OF THE INVENTION

[004] The invention relates to an electromagnetic selection device for a two-stage planetary gear set ~~in accordance with the preamble of claim 1 disclosed in DE-A 199 17 673~~.

[005] BACKGROUND OF THE INVENTION

[008] ~~The solution of said problem results from the features of claim 1.~~ It is of advantage here that any lever mechanism for motion transmission between electromagnet and sliding sleeve is eliminated thereby reducing the number of parts, since the armature is directly fastened - via a bearing - upon the sliding sleeve. Eliminated is also any play necessarily associated with a lever mechanism. Since the armature is situated within the transmission housing an aperture is eliminated and therewith a possible point of leakage in the wall of the transmission housing.

[009] SUMMARY OF THE INVENTION

[014] BRIEF DESCRIPTION OF THE DRAWINGS

[015] ~~One embodiment of t~~ The invention ~~is shown in the drawing and described in detail herebelow. In the drawing~~ will now be described, by way of example, with reference to the accompanying drawings in which:

[019] DETAILED DESCRIPTION OF THE INVENTION

[022] The sliding sleeve 14 has on its external periphery grooves (not shown) in which locking bolts engage to keep the sliding sleeve 14 in one of the switch positions.

[023] The locking bolts are movable by an electromechanical actuation unit 29 radially to the transmission main axle where they engage under tension in the grooves and, by an electromagnet of the actuation unit 29, are drawn radially outwards so as to unlock the sliding sleeve 14.

[024] The electromagnets of the selector unit and of the actuation unit 29 must, therefore, be controlled, that is, supplied with current, only when a selection process is being carried out. Aside from switchings the locking unit prevents an unintended displacement of the sliding sleeve 14.

Reference numerals

1 planetary gear set
2 input shaft
3 output shaft
4 housing cover
5 housing cover
6 transmission housing
7 driving sleeve
8 sun gear
9 planetary gear
10 planet carrier
11 ring gear
12 outer coupling gearing (part 11)
13 inner coupling gearing (part 14)
14 sliding sleeve
15 outer coupling gearing (part 7)
16 outer coupling gearing (part 14)
17 inner coupling gearing (part 18)
18 brake disc
19 grooved ball bearing
20 selector unit
21 fastening bolts
22 magnet coil, left
23 magnet coil, right
24 armature
24a armature slopes
24b armature slopes
24c front surface
24d front surface
24l armature, left position
24r armature, right position
25 armature counterpart, left
24a slopes (part 24)
26 armature counterpart, right
27 magnet body
27a magnet body
27b magnet body
27c magnet body
28 through hole
29 electromagnetic actuating unit
30 front-mounted structural unit